TASK SPECIFIC SAMPLING MEMORANDUM (TSSM)

EPA CONTRACT NUMBER: 68-W9-0021

WORK ASSIGNMENT NUMBER: 005-8L22

TASK: RAILROAD GRADE SAMPLING

OPERABLE UNIT: PRIORITY SOILS

NPL SITE: SILVER BOW CREEK/BUTTE AREA

DATE: MAY 1, 1991

DCN: To Be Assigned 7760-005-EP-BCRM

PREPARED BY: CDM FEDERAL PROGRAMS CORPORATION
1626 Cole Boulevard, Suite 100
Golden, Colorado 80401

APPROVAL:

ARCS Work Assignment Manager	Date 5.3.91
ARCS Regional Manager	Date 5/3/91
ARCS QA Director	Date 5/3/91
EPA Remedial Project Manager	Date 5/6/91
EPA QA Officer	Date

1. Project: Railroad Grade Sampling in Butte, Montana.

2. Project Requested By: Sara Weinstock, U.S. EPA, Region VIII, Helena, Montana.

3. Date of Request: April 22, 1991

4. Date of Project Initiation: April 22, 1991

5. EPA Project Officer: Sara Weinstock

6. EPA Quality Assurance Officer: Jim Luey

7. Project Description

The railroad grade sampling investigation was requested by the U.S. Environmental Protection Agency (EPA), Region VIII, Helena, Montana office. The purpose of the investigation is to characterize heavy metals and arsenic concentrations in designated railroad grades within the Butte Priority Soils Operable Unit (PSOU). Currently, these railroad grades are either active or inactive (abandoned) with several different entities holding ownership of these properties.

Previous analytical results suggest that heavy metals and arsenic concentrations are generally elevated throughout the network of railroad grades in the PSOU. Not all railroad grades within the PSOU have been sampled; however, previous analytical results indicate lead concentrations generally range between 200 mg/kg and 1,100 mg/kg, but are as high as 2,800 mg/kg. Arsenic concentrations are generally between 100 mg/kg and 400 mg/kg, but are as high as 1,400 mg/kg. Visual observations suggest the presence of slag, tailings and sulfide ores. Several railroad grades were constructed through historic waste dump locations, and often times waste rock was used as a cut-and-fill base material during railroad grade construction.

The EPA believes that these railroad grades contribute to air-entrained dust, surface runoff, and leaching of metals, thus posing a potential risk to human health and the environment. In addition, analytical results from drainages, mine site and residential yard samples taken adjacent to and/or down-gradient of these railroad grades, generally indicate elevated metals concentrations (CDM 1988). It is the EPA's intention to have contaminated railroad grades remediated in conjunction with Priority Soils Expedited Response activities or following the subsequent Remedial Investigation/Feasibility Study (RI/FS).

A. Objectives, Scope and Schedule

The objective of this sampling investigation is to determine the heavy metals and arsenic concentrations present in the railroad grades within selected reaches of the PSOU. This sampling investigation will focus on both active and inactive (abandoned) railroad grades

within the PSOU. However, there will be no sampling performed on railroad grades which are either: (a) located within an active mine area(s); or (b) have been reclaimed during previous remedial activities (e.g., Priority Soils Phase II Engineering Evaluation/Cost Analysis (EE/CA) activities).

The analytical parameters of concern include total arsenic, cadmium, copper, lead and zinc, pH and EC, acid-base accounting, sulfur speciation, and the SMP test of acidity. It is anticipated the sampling episode will commence during the second week of May 1991, and should entail approximately five field sampling days. Specific sampling strategy, rationale and design are addressed later in this document. Details for soil sampling are provided in the Site-Wide Sampling and Analysis Plan (SAP) (CDM 1986).

At the conclusion of the sampling activities, a railroad grade sampling figure will be produced and appended to this document. This will allow sampling personnel to identify all sampling locations, including both composite and opportunistic samples, while using field log forms and field maps as references. This will help to ensure accuracy while reviewing analytical data and developing remedial strategies or future sampling investigations on these railroad grades.

B. Intended Data Usage

The data obtained from this investigation will be used by the EPA to estimate the potential risk to human health and the environment. These data will be used as a field screening technique in estimating the nature and extent of contamination present within related railroad grade reaches. All previous analytical results and data obtained from this investigation will be used to:

- confirm suspected elevated heavy metals and arsenic concentrations on railroad grades,
- determine current and potential acidity for railroad grade materials,
- compare analytical results to any current or subsequent railroad grade data bases,
- assist with designing future Remedial Design/Remedial Action (RD/RA) decisions in Butte, Montana,
- help support conclusions made in the Preliminary Baseline Risk Assessment for the PSOU,
- develop an analytical data base for railroad grade construction materials,

- identify areas that present a potentially acute human health threat, and
- identify areas requiring immediate remedial response action.

Additional sampling and analyses may be necessary at a later date as more definitive data are needed to support RI/FS decisions. This may include more detailed or intense sampling programs on railroad grades within active mine areas, in previously reclaimed areas, or adjacent to the residential receptor areas.

C. Sampling Design and Rationale

The sampling design for the railroad grade sampling investigation consists of obtaining both composite and opportunistic surface grab samples (0-2") from selected active and inactive (abandoned) railroad grades. There are several railroad ownerships throughout the PSOU. The following is a list of current railroad ownerships within the PSOU:

- Union Pacific Railroad Company/Oregon Shortline Railroad Company
- Montana Western Railroad Company
- Burlington Northern Railroad Company
- State of Montana
- Universal Royal Apex Limited
- BGM Railroad Company
- Mountain Con Mining Corporation

Surface composite sampling is described as taking 5 aliquot surface samples (0-2") per every 1,000 feet of railroad grade. These 5 aliquot samples will be taken at 200-foot intervals. An archive split sample will be taken from each of the aliquot samples. Both the aliquot and archive samples will contain approximately 250 grams of material each. Once the archive samples have been split from the 5 aliquots, the remaining material will be combined and homogenized to form one composite sample. This composite sample will contain approximately 1,250 grams of material and will represent that 1000-foot reach of railroad grade. Archive splits will be needed in the event there are additional analytical requests for this railroad grade media. All archive splits will be kept in a secured facility by CDM Federal Programs Corporation (CDM/FPC) personnel.

Aliquot surface samples will only be taken from one side of the railroad grade, with exact sampling locations chosen based on field judgment and criteria explained in later sections. Samples will not be taken from the apex or top of the railroad bed, as generally there is railroad fill (e.g. rhyolite) covering this area. An exception may be where an abandoned railroad exists, at which point an opportunistic grab sample may be taken from any portion of that existing grade or bed.

Opportunistic grab samples will be taken from the 0-2" horizon when a suspected area of potentially contaminated material is detected (e.g., concentrate ore spillage, slag, waste rock), or if that location contains an apparent pathway for airborne transport, surface runoff or erosion to human or environmental receptors or an adjacent drainage basin.

The railroad grade sample locations will be selected while considering the following criteria:

- review of previous analytical data on railroad grade or adjacent media sampling (e.g., waste rock dumps, residential yards);
- physical location of railroad grade structures, surface streets, tressels, etc.;
- location of railroad grade in relation to mine dumps, residential yards, drainage basins, etc.; and
- obvious visual changes in railroad grade base material (e.g., waste rock, tailings, native soil, etc.).

In several locations there are multiple railroad lines. When sampling these locations, field personnel will use professional field judgment in order to select sample locations which best represent that portion of the railroad grade. In some instances there may be difficulty in discerning between the actual railroad grade and the adjacent landscape. Again, sample locations will be selected using professional field judgment, with sampling descriptions and notations entered into the field logbook and forms.

D. Sampling Media and Frequency of Collection

Media which will be sampled during this investigation includes primarily railroad grade embankments, slopes and earthen structures. Again, these railroad grades are generally composed of waste rock, slag, tailings, native rock and soil and contaminated soil material. Some of the material found on these railroad grades contains rock fragments in excess of two inches, especially in those locations where the railroad grade has been constructed using waste rock dump material. While considering all media, sampling personnel will collect samples which are representative of material found within that portion of the railroad grade.

It is estimated that approximately 100 samples, including natural and QC samples, will be collected. At this time, it is unknown exactly how many opportunistic samples may be collected, as this will be dependent upon field personnel judgment based on the criteria discussed previously.

E. Parameter Table

Sample Summary

As Table 1 indicates, approximately 100 field samples will be shipped to the laboratory for analysis for total metals, total arsenic, pH, specific conductivity, acid base account including total sulfur, sulfate sulfur, sulfide sulfur, residual sulfur, neutralization potential and SMP lime requirements.

F. QC Sample Parameter Table

Quality Control Sample Summary

Table 2 illustrates a summary of the Quality Control Sample Program. This summary depicts the parameters that will be analyzed, the frequency of analysis, and the level of quality assurance/quality control (QA/QC) need to support the railroad grade sampling effort.

8. Schedule of Tasks and Products

The following is a schedule for deliverables:

Friday, May 3, 1991 - Sampling and Analysis Plan Completed

Friday, May 10, 1991 - Railroad Grade Sampling Completed

Friday, June 6, 1991 - Final Data Report to EPA

Upon receipt of analytical results, CDM/FPC will prepare a data report for the EPA.

9. Project Organization and Responsibility

Gregg Monger - sampling operations
Gregg Monger - sampling QC
Contract laboratory manager - laboratory analysis
Contract laboratory manager - laboratory QC
Robert Rennick - data processing activities
Robert Rennick - data processing QC
Bob Thielke - data quality review
Bob Thielke - performance audits
Bob Thielke - system audits
Rosemary Ellersick - overall QC
Robert Rennick - overall project coordinator

TABLE 1
NATURAL SAMPLE SUMMARY

Parameter	Number of Samples	Sample Matrix	Analytical Methods Reference	Analytical Technique	Sample Preservation	Sample Container	Holding Time
Total Metals Aluminum Arsenic Cadmium Copper Chromium Iron Lead Manganese Nickel Zinc	100	Waste rock, soils, slag, tailings	Current CLP/SOW Doc. No. ILM 01.0 Revision Date 4/90	ICP emission	None	Ziplock bag (1 gallon)	6 months
pH	100	Waste rock, soils, slag, tailings	Saturated paste - Method 2.3* Method 10-3.2*		None	Ziplock bag (1 gallon)	6 months
EC	100	Waste rock, soils, slag, tailings	Saturated paste - Method 2.3* Method 10-3.3*		None	Ziplock bag (1 gallon)	6 months
Acid Base Account Total sulfur Sulfate sulfur Sulfide sulfur Neutralization potential SMP lime requirement	100	Waste rock, soils, slag, tailings	Modified technique per laboratory SOW		None	Ziplock bag (1 gallon)	6 months

* Methods of Soil Analysis, Part 2, Chemical and Microbiological Properties, 1982. Second Edition ASA Monograph No. 9, Am.Soc. Agron. Inc., Soil Sci. Soc. Am. Inc., Madison, WI

TABLE 2
SUMMARY OF ANALYTICAL METHODS AND LABORATORY QUALITY CONTROL REQUIREMENTS

Parameter	Analysis Method	Detec. Lmt. Rqmt. (mg/kg)	Spike Rec. Ctl. Lmt. (%R)	Dupl. Ctl. Lmt. %(RPD)	Lab Check Sample (%R)	QC Check Sample (%R)	QA Sample Frequency
Total	CLP SOW Doc.						1/20
Aluminium	No. ILM 01.0	200	75-125	±20	80-120	90-100	1/20
Arsenic	(Rev. 4/90)	5	75-125	±20	80-120	90-100	1/20
Cadmium		5	75-125	±20	80-120	90-100	1/20
Copper		200	75-125	±20	80-120	90-100	1/20
Chromium		10	75-125	±20	80-120	90-100	1/20
Iron		100	75-125	±20	80-120	90-100	1/20
Lead		3	75-125	±20	80-120	90-100	1/20
Manganese		15	75-125	±20	80-120	90-100	1/20
Nickel		40	75-125	±20	80-120	90-100	1/20
Zinc		20	75-125	±20	80-120	90-100	
pH	Saturated paste - Method 2.3* Method 10-3.2*	NA	NA	±1 unit	NA	90-100	1/20
EC	Saturated paste - Method 2.3* Method 10-3.3*	1umho/cm	NA	±20	NA	90-100	1/20
Acid Base Account Total sulfur Sulfate sulfur Sulfide sulfur Neutralization potential SMP lime requirement	Modified technique per laboratory SOW	NA	NA	NA	NA	NA	1/20

* Methods of Soil Analysis, Part 2, Chemical and Microbiological Properties, 1982. Second Edition ASA Monograph No. 9. Am. Soc. Agron.Inc., Soil Sci. Soc. Am. Inc., Madison, WI.

10. Data Quality Requirements and Assessments

The Site-Wide SAP for Butte (CDM 1986) discusses procedures necessary to assure consistency and accuracy of data. Criteria discussed include precision, accuracy, representativeness, completeness, and comparability.

11. Sampling Procedures and Protocol

Specific details for soil sampling are provided in the Site-Wide SAP for Butte (CDM 1986). In general, five aliquot samples will be taken and homogenized to form one composite sample. Each aliquot will be extracted at approximately the 200-foot mark. The composite sample will be representative of each 1,000-foot increment of railroad grade. Aliquot samples will be extracted from the surface (0-2") only, using either a hand trowel or sharpshooter shovel. A portion of the archive sample will be split from each aliquot sample taken. Therefore, approximately 250 grams of material will comprise both aliquot and archive sample. When the five aliquots are homogenized, the composite sample will consist of approximately 1,250 grams of material.

Opportunistic samples will be extracted using the same sampling procedures, with each opportunistic sample consisting of approximately 250 grams of material. Again, archive samples will be split from the opportunistic sample material. All samples will have an archive split extracted in the event of further analytical requests.

Field quality control (QC) samples consisting of duplicates and water rinsate blanks. These samples will be inserted into the sample train at a minimum frequency of 1 per 20 natural samples, or approximately 10 total QC samples will be collected. The field team leader will determine the exact number of QC samples to be collected. Duplicates will consist of splits of natural samples. Field cross-contamination blanks will be equipment rinsate water (triple distilled).

The 0-2" sampling depth increment was chosen to provide data on heavy metals and arsenic concentrations in the surface material which is most likely to be ingested or inhaled. The specific railroad grade sampling procedures are as follows:

- Have all equipment, field forms, access agreements, and maps prior to mobilization.
- Travel to site and locate selected sample location on railroad grade.
- Begin field logbook and field map notations (Appendix A).
- Select sampling location, flag it, and enter location into field logbook and field map using sampling location criteria described above.

- Place the sample location identification sign at the flag and take two pictures illustrating the exact location of the sample and the surrounding landmarks or features, and possible sources of contamination.

- At each sample location, remove approximately 500 grams of materials from the 0-2" surface increment using a decontaminated sampling utensil (trowel, shovel). Samples will be field split to form both aliquot and archive samples (approximately 250 grams each).

- Describe this material in the field logbook and/or in the field forms, including distances to receptor areas, adjacent drainage basins or obvious erosion.

- Continue this procedure at selected 200-foot sample locations and at other locations selected by the sample team leader.

- Homogenize one-half of all 5 aliquot samples to form one composite sample for each 1,000-foot segment.

- Continue sampling at 200-foot intervals and composite throughout the reach of the railroad grade at the 1,000-foot intervals.

- Continue to select and sample (opportunistic) at locations suspected of being contaminated.

- Complete required paperwork and place samples in a cooler under custody of CDM/FPC personnel.

A. Sampling Equipment and Decontamination

The list of required sampling equipment is presented in Table 3. To minimize cross-contamination of samples, all sampling equipment will be carefully cleaned prior to obtaining a new sample. Based on previous sampling investigations and review of QC reports, it was decided that an acid-rinse equipment decontamination procedure is not necessary for this task. Decontamination procedures are discussed below.

Step 1 Sampling equipment will be brushed with a wire brush to remove sampling particles.

Step 2 Sampling equipment will be washed in tap water and detergent solution to which alconox has been added.

Step 3 Equipment will be rinsed with tap and triple distilled water and dried using Kimwipes.

TABLE 3
SOIL SAMPLING EQUIPMENT

ITEM	QUANTITY
Stainless steel trowel	As needed
Stainless steel sharpshooter	2
Engineering flag	150
5 gallon plastic bucket with lid	5
Map board	3
Distilled water	As needed
Scrub brush (nylon)	2
Scrub brush (wire)	2
Sharpie water-proof pen	10
Black fine point pen	10
Leather gloves	2
Plastic or latex gloves (box)	5
Paper towels	As needed
Log book (field)	As needed
Procedures manual	1
Map	1
Air photos (set)	1
35 mm camera	3
Film (200 ASA-36)	As needed
1 gallon plastic ziplock freezer bag (box)	As needed
Large garbage bags (box)	1
Cooler	5
Strapping tape	As needed
Duct tape	As needed
Vermiculite (bag)	As needed

TABLE 3 (con't)
SOIL SAMPLING EQUIPMENT

ITEM	QUANTITY
Sample tag	200
Traffic report	10
Custody seals	As needed
Chain-of-custody record (EPA)	10
Chain-of-custody record (CDM/FPC)	10
Tyvek suit	As needed
Safety glasses	2
First aid kit	1
Dust Mask	12
Alconox	As needed
Coveralls	2
Steel shank boots	As needed
Health and Safety Plan (attached to TSSM)	1

Step 4 Sampling surfaces of equipment will be inserted into a clean plastic bag during transport between sampling locations.

All sampling equipment will be carefully cleaned, after each aliquot or opportunistic sample, following the above steps in order to minimize cross-contamination.

12. Sample Custody Procedures

A. Sample Custody, Tracking and Shipping

Sample custody includes the classification, identification, labeling, handling, packaging, and transportation of samples collected during this investigation. These protocol have been described in previous documents (EPA 1987, CDM 1986). A summary of procedures for this sampling event are described below.

Sample classification is necessary to ensure the protection of personnel involved in the shipment of samples, and to maintain the integrity of the sample. Samples obtained at uncontrolled hazardous waste sites are classified as either environmental or hazardous samples. Department of Transportation (DOT) regulations do not cover metal contaminants such as those present at the PSOU site. Therefore, all samples collected during this investigation will be classified as environmental samples.

A coding system will be used to identify each sample collected during this investigation. The coding system will allow tracking and retrieval of information concerning a particular sample, and will assure that each sample is uniquely identified. Each sample will be identified by a site identifier, an investigation identifier, a station number (i.e., a sample number), and a depth identifier. For example 005-RRG-001-02 would indicate that the sample was collected from the PSOU (005), that it was the railroad grade investigation (RRG), that it was the first sampling station (001), and that it was taken from the 0-2" depth interval (02).

To maintain a record of sample collection, transfer between personnel, shipment, and receipt by the laboratory, documentation in the field logbook and on the chain-of-custody records will be used. The field personnel will initiate the chain-of-custody procedure by completing its portion of an EPA chain-of-custody record while in the field. All transfers of custody between field personnel will be documented in the logbook. See Site-Wide SAP (CDM 1986) for details.

Samples will be transported from the field to the CDM/FPC Helena office under strict chain-of-custody procedures. In the CDM/FPC Helena office, sample labeling and paperwork will be checked. Sample-containing ziplock bags will be placed in DOT-approved ice chest(s) together with appropriate amounts of packing material to prevent rupture during transportation. Sample chain-of-custody forms as well as other necessary documentation will

be sealed in ziplock bags and taped with strapping tape and chain-of-custody seals. All laboratory-bound samples will be shipped by Federal Express or "cargo only" aircraft by overnight delivery.

B. Sample Preparation

CDM/FPC personnel will sign and date the chain-of-custody forms in the field and will remain in control of the samples through the sample preparation and shipment phases (CDM 1986). All composite, opportunistic and archive samples will be double bagged in one-gallon ziplock bags and will have appropriate sampling identification numbers affixed using EPS sample tags. Composite samples will be thoroughly homogenized using aliquot samples as described in Section 11 of this document. Composite samples and QA/QC samples will be forwarded to the laboratory for sample preparation (drying, sieving) and analysis as specified in the Analytical Statement of Work. Archive samples will be under the custody of CDM/FPC and retained for subsequent analytical requests.

13. Calibration Procedures and Preventive Maintenance

Preventive maintenance requirements and standard operating procedures are described in detail under Equipment Operation, Maintenance, Calibration, and Standardization (EPA 1987, CDM 1986).

14. Data Validation, Reduction and Reporting

The objective of data validation is to identify any unreliable or invalid laboratory measurements. Reduction of laboratory measurements and laboratory reporting of analytical parameters will be in accordance with the procedures specified for each analytical method (e.g., perform laboratory calculations in accordance with the method specific procedure). Any deviations from the analytical method will be delineated on the analytical request sheet(s). Any special reporting requirements (e.g., reporting concentrations in soil on a dry- or wet-weight basis) will also be detailed in the analytical request sheet(s). Analytical parameters will be reported in units generally accepted within the industry. Data validation, reduction and reporting requirements for this project have been previously described (EPA 1987, CDM 1986).

Data validation entails a review of the QC data and the raw data to verify that the laboratory was operating within required control limits, the analytical results are correctly transcribed from the instrument read outs, and which, if any, natural samples are related to any out-of-control QC samples. The initial screening of QC data results will be conducted by CDM/FPC personnel with experience validating CLP data packages, and who have experience with the analysis of soil material using these analytical procedures. This data validation exercise will serve to determine the initial usability of these data. If a more thorough data validation is required by the EPA, the data packages will undergo a complete

CLP data review by personnel at C.C. Johnson & Malhotra, CDM/FPC's data validation subcontractor.

For the initial validation screening, the laboratory and field QC sample results will be checked, using EPA guidance (EPA no date), to determine whether they are within the specified control limits (see Table 2). If the results of any of the QC data are found to be outside the control limits, then the results of the associated natural samples will be marked as either "estimated" concentrations or unusable. All natural sample results will then be identified as either "enforcement," "screening," or "unusable" using guidance developed for the Clark Fork Data Management System (EPA 1990). In addition, all results will be checked for reasonableness by comparing them to results from previous sample analyses at the Butte site.

15. Performance and System Audits

Performance audits are quantitative checks on a measurement system and are most appropriate to analytical work. System audits are qualitative reviews of different aspects of project work to check on the use of appropriate QC measures and the functioning of the quality assurance system. Section 6 of CDM/FPC's ARCS VI-VIII Quality Assurance Management Plan (CDM/FPC 1991a) defines CDM/FPC's auditing policy and procedures. Performance and system audits have been described in previous documents (EPA 1987, CDM 1986).

16. Quality Assurance Reports to Management

Several different reports may be generated which involve different aspects of quality assurance. These may include:

- data validation reports that include accuracy, precision, and completeness statements;
- audit reports that detail any deficiencies in the system and suggest corrective actions;
- reports on significant QA problems, and recommended solutions; and
- corrective actions and results.

The final data report to the EPA will have a QA/QC section that will include the results of the data validation exercise. The usability of each data point will be specified as will the accuracy, precision and completeness per EPA guidance (EPA no date).

17. Corrective Action

Where QA problems or deficiencies requiring special action are uncovered, the Site Project Manager (SPM) and/or the On-Site Coordinator (OSC) will consult with the various QA personnel to identify appropriate corrective action(s). The SPM will then be responsible for implementing the corrective action(s).

18. Laboratory Services

One of the uses for these data will be to support critical project RD/RA decisions that will coincide with subsequent PSOU remedial studies. The sampling of these railroad grade materials will be a one-time event. Consequently, the laboratory services must exercise caution during sample preparation and analysis to avoid compromising the validity of the sample results.

The information and data generated during this sampling episode must be defensible in a court of law, and for use in making decisions on the fate of these materials. Therefore, the following requirements must be met:

- All data must be of known quality. Laboratory QA/QC requirements are discussed in this document.

- Strict chain-of-custody must be maintained for all samples from the time of collection to the completing of all analyses.

The laboratory shall have in place or shall develop the QA plan. The plan shall designate key QA individuals (sample custodian, QA officer, etc.) by name and shall define their responsibilities. The plan shall detail the mechanisms for checking whether laboratory procedures are within control, plus the corrective actions and responsibilities for out-of-control conditions. Laboratory QA/QC limits are specifically defined in the current CLP Statement of Work. The status of results of the sample preparation and analysis shall not be disclosed to or discussed with anyone but the following individuals, unless otherwise authorized by project personnel:

Russ Forba, USEPA, 8MO, Helena, Montana - (406) 449-5432
Sara Weinstock, USEPA, 8MO, Helena, Montana - (406) 449-5432
Robert Rennick, CDM/FPC, Helena, Montana - (406) 443-7559
Gregg Monger, CDM/FPC, Helena, Montana - (406) 443-7559

Results from laboratory analyses will be requested to be within a 14-day turn-around time period. The laboratory shall be responsible for devising a reporting format such that the results are tabulated with reference to the sample identification number written on the sampling container (e.g., ziplock bag). The same tabulation shall denote a cross-reference number between each sample and the appropriate QC data package. These tabulations shall be in additional to standard documentation backup (laboratory calculation sheets, chain-of-custody documentation, etc.).

19. Health and Safety Plan

The PSOU Site-Wide Health and Safety Plan (HSP) (CDM/FPC 1991b) addresses field health and safety practices, personnel protection, and emergency protocol for this sampling investigation. All CDM/FPC field personnel will have reviewed and understood all contents of the current site-wide HSP prior to mobilization on-site. In addition, as specified in the HSP, an addendum has been developed explaining the activities inclusive within the railroad grade sampling program, and any additional or relevant sampling information necessary for implementation of this task (Appendix B).

20. Access Procedures

Access will be obtained prior to any sampling activities on the railroad grades. An access agreement (Appendix C) will be signed by all railroad property owners and/or lessees prior to any mobilization of sampling personnel on-site. Access agreements will be signed approximately one week before sampling is to commence.

21. References

CDM 1986. Preliminary Draft Sampling and Analysis Plan for Butte-Silver Bow NPL Site, Butte, Montana. November 4, 1986. DCN: 292-B1-OP-DNSJ.

CDM 1988. Final Report, Butte Soils Screening Study for the butte Addition to the Silver Bow Creek NPL Site, Butte, Montana, April 19, 1988.

CDM/FPC 1991a. Quality Assurance Management Plan, Remedial Planning Activities at Selected Uncontrolled Hazardous Substance Disposal Sites in the Zone of Regions Vi, Vii and VIII. DCN: 7760-999-QA-BQWX, Revision 0, July 1989, Revision 1, March 1991.

CDM/FPC 1991b. Silver Bow Creek/Butte Area NPL Site Site-Wide Health and Safety Plan. January 1, 1991. DCN: 7760-005-HS-BNTV.

EPA 1987. A Compendium of Superfund Field Operations Methods. December 1987. EPA/540/P-87/001.

EPA 1990. Clark Fork Data System Reference, June 22, 1990.

EPA No Date. Laboratory Data Validation, Functional Guidelines for Evaluating Inorganics Analysis. USEPA Office of Emergency and Remedial Response.

APPENDIX A

SILVER BOW CREEK/BUTTE AREA NPL SITE
RAILROAD GRADE SAMPLING FIELD LOG

Sample Location ID No.: 005-RRG-____-____

CDM/FPC Sampling Personnel: _____ 24 Hour Time: ____:____

Railroad Grade Owner: _____

Railroad Grade Sample Site Description: _____ Side of Grade: N ___ S ___ E ___ W ___

Grab Composite: ____ Opportunistic: ____

Photographs	Roll	Frame	Direction	Description
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Sampling Depth: 0-2"

Obstructions: Type: _____ Distance: _____ Direction: _____

Potential Exposure Pathways & Receptors Type: _____ Distance: _____ Direction: _____

Site Sketch/Survey:

Field Supervisor Signature: _____

Document Controller Signature: _____

APPENDIX B

ADDENDUM TO THE SILVER BOW CREEK/BUTTE AREA SITE-WIDE HEALTH AND SAFETY PLAN

1991 RAILROAD GRADE INVESTIGATION SILVER BOW CREEK/BUTTE AREA SUPERFUND SITE BUTTE, MONTANA

January 1991

Contract No.: 68-W9-0021
Work Assignment No.: 005-8L22
Document No.: To Be Assigned 7760-005-EP-BRFM

Prepared for:
U.S. ENVIRONMENTAL PROTECTION AGENCY

Prepared by:

CDM FEDERAL PROGRAMS CORPORATION
1626 Cole Boulevard, Suite 100
Golden, CO 80401

CDM/FPC PERSONNEL: Gregg Monger, CDM/FPC Helena, MT
Amaro Astatke, CDM/FPC Lenexa, DS

DATE: May 1, 1991

SITE NAME: Silver Bow Creek/Butte Area NPL Site - 1991 Railroad Grade Sampling

EPA CONTACT AND PHONE NO.: Russ Forbs, Helena, Montana - (406) 449-5432
Sara Weinstock, Helena, Montana - (406) 449-5432

DATE/DURATION OF ACTIVITY: START (05/06/91) END (05/10/91)

DESCRIPTION OF ACTIVITY:

Railroad Grade Sampling on requested locations within the Priority Soils Operable Unit by EPA (active and inactive railroad grades).

BRIEF DESCRIPTION OF SAMPLING OBJECTIVES OR FIELD ACTIVITY TASKS:

To obtain screening level data to characterize heavy metals and arsenic concentrations in railroad grades within the Priority Soils Operable Unit. Surface composite samples (0-2") will be taken at every 1,000 feet of railroad grade. Five aliquot samples per composite, or one aliquot per 200 feet of grade. Archives splits from all aliquots.

IDENTIFY SPECIFIC CONTAMINANT(S) ON SITE (INCLUDE MAX. CONCENTRATION(S):

Previous analytical range for railroad grades

Previous Pb - maximum concentration - 2,800 mg/kg
Previous As - maximum concentration - 1,400 mg/kg

Pb - generally range between 200-1000 mg/kg
As - general range between 100-400 mg/kg

LEVEL OF PROTECTION NEEDED FOR TASK(S): D

OVERALL HAZARD EVALUATION: ( ) High ( ) Medium (x) Low

WASTE TYPES: ( ) Liquid ( ) Solid ( ) Sludge ( ) Gas
( ) Unknown (x) Other, specify: Metals As, Cd, Pb, Zn, Cu
Waste rock, slag, tailings, contaminated soils

ADDITIONAL HEALTH AND SAFETY CONSIDERATIONS:

Steel-toe boots
Leather gloves
Orange clothing (hunter's vest)
Awareness of train schedules for active railroad lines
Hearing protection (optional)
Coveralls/tyvek

While sampling on steep railroad grades, only one field member shall be positioned on the grade at a time.

E F Cyzewski 5/3/91
Eugene F. Cyzewski
Regional Health and Safety Coordinator
CDM/FPC Golden, Colorado

Gregg R. Monger 5/3/91
Gregg R. Monger
Butte Project Health and Safety Coordinator
Helena, Montana

APPENDIX C

United States
Environmental Protection
Agency

Region 8, Montana Office
Federal Building
301 S. Park, Drawer 10096
Helena, Montana 59626-0096

EPA

SUPERFUND ACCESS AGREEMENT

I, _____, the

_____

(OWNER, AUTHORIZED REPRESENTATIVE OF THE OWNER, OR OPERATOR)

of the property at:

_____

_____

(PROPERTY DESCRIPTION)

agree to allow Environmental Protection Agency (EPA) employees and contractors to have access to, and to perform investigations authorized under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA OR SUPERFUND) upon the above-described property.

I understand that EPA has authority to enter upon the above-described property pursuant to section 104(e) of CERCLA, 42 U.S.C. section 9604(b). These information gathering activities will include collecting grab samples of materials from railroad bed properties, gathering pertinent field sampling information, and taking photographs. I further understand that EPA will provide to me final data resulting from EPA activities on the above-described property.

I acknowledge that the list of investigations described above is not limiting, and that EPA may implement any other investigations it deems necessary to carry out the purposes of section 104(b) CERCLA, 42 U.S.C. section 9604(b), as described above.

A. YOU MAY, IF YOU DESIRE, ASSERT A BUSINESS CONFIDENTIALITY CLAIM COVERING PART OR ALL OF THE INFORMATION. IF YOU DO ASSERT A CLAIM, THE INFORMATION WILL BE DISCLOSED BY EPA ONLY TO THE EXTENT, AND BY MEANS OF THE PROCEDURES SET FORTH IN 40 C.F.R. PART 2, SUBPART B.

B. IF NO SUCH CLAIM IS MADE AT THE TIME THIS INFORMATION IS RECEIVED BY THE CONTRACTOR, IT MAY BE MADE AVAILABLE TO THE PUBLIC BY THE ENVIRONMENTAL PROTECTION AGENCY WITHOUT FURTHER NOTICE.

_____ _____

(DATE) (SIGNATURE)